

REMARKS

This paper is responsive to an Office Action dated August 9, 2005. Prior to this amendment claims 1, 4-20, 24-27, 32-35, 37-51, 54-55, and 58-59 were pending. After amending claim 1, 4-5, 16, 19-20, 33-35, 37-38, 51, 55, and 58, claims 1, 4-20, 24-27, 32-35, 37-51, 54-55, and 58-59 remain pending.

In Section 3 the Office Action, claims 1, 19, and 33-34 have been rejected as unpatentable under 35 U.S.C. 103(a) with respect to Lee (US Pub. 2002/0045424), in view of Zyren (US Patent 6,377,608). With respect to claims 1 and 33 the Office Action acknowledges that Lee does not describe the monitoring of a piconet beacon frequency. The Office Action states that Zyren teaches such monitoring and that it would have been obvious to use the beacon monitoring function of Zyren, with the motivation "being that a node in an ad hoc network radio, such as an FHSS radio, is able to monitor whether it is in close proximity to an infrastructure network, as taught by Zyren." This rejection is traversed as follows.

An invention is unpatentable if the differences between it and the prior art would have been obvious at the time of the invention. As stated in MPEP § 2143, there are three requirements to establish a *prima facie* case of obviousness.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when

combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck* 947 F.2d 488, 20 USPQ2d, 1438 (Fed. Cir. 1991).

Lee, in paragraphs [0012] and [0013], describes a gateway that transmits a beacon signal to Bluetooth devices for locating a Bluetooth device [0012] and confirming a piconet to which a Bluetooth device belongs [0013]. Further details of the beacon signal are given in [0050], where it states that the gateway transmits a beacon signal to each Bluetooth device to confirm the nearest access point (AP). The beacon signal contains a Receiver Signal Strength Indicator (RSSI). Each Bluetooth unit is able to receive RSSI from four different APs [0060]. In response to RSSI measurement, the Bluetooth unit communicates with the nearest AP, which is assumed to be the AP with the strongest RSSI measurement [0062].

Generally, Zyren is concerned with avoiding interference between a wireless infrastructure network (i.e., Bluetooth) and an ad-hoc network. An ad-hoc node periodically monitors beacon signals in unused portions of the infrastructure ISM band to determine if it is in close proximity to an infrastructure network (col. 1, ln. 59, through col. 2, ln. 39). Beacons are sent via an independent radio link to the infrastructure WLAN to "scare off" any ad hoc radios operating nearby.

Lee describes a beacon signal whose strength (RSSI) can be measured by Bluetooth units. No information is exchanged using Lee's beacon signal. Zyren's infrastructure warning beacon does not suggest that Lee's beacon can be modified to supply BD_addr and CLK information at a specific predetermined frequency, selected from among

the plurality of hop frequencies. In fact, neither Lee nor Zyren suggest any modifications to the conventional process of a slave device acquiring a piconet.

The claimed invention master identity signal is part of a novel process that permits a Bluetooth unit to acquire a piconet with a significantly fewer number of steps. The claimed invention master identity signal acts as a "shortcut" in the process of a slave joining a piconet, bypassing convention inquiry steps and providing the information needed for a slave to synchronize hopping frequencies.

With respect to the second *prima facie* requirement, even if an expert were given Lee's RSSI beacon and Zyren avoidance beacon as a foundation, it is unlikely that this expert would derive the claimed invention master identity signal. This is because none of the references appreciate that the information needed for a slave to synchronize itself with a piconet can be supplied as at the f(kB) frequency as a master identity signal.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal that includes a master's BD_addr and CLK information (claims 1 and 33) that is broadcast at a predetermined frequency (f(kB)) from among the plurality of spread spectrum frequencies (claim 1). Lee and Zyren describe simple beacons, whose only attribute is signal strength. The claimed invention describes a shortcut to the conventional synchronization process that supplies information in a frequency f(kB) (claim 1) or multiple frequencies (claim 19). Time is saved in that the slave device need only monitor a limited number of frequencies, as

opposed to acquiring a hopping sequence. Time is also saved because the slave can initiate the acquisition process.

In the *Response to Arguments* Section, the Office Action states that Lee describes the limitation of a master device broadcasting at a first predetermined frequency ($f(kB)$), from among the plurality of spread spectrum frequencies, referencing the Abstract and paragraph 12. However, [0012] of Lee's patent clearly say that the *gateway* broadcasts a beacon, as opposed to a master device. More critically, Lee does not describe a master identity signal being broadcast at the $f(kB)$ frequency, as recited in claim 1. The Office Action acknowledges this fact in the admissions (page 13 of the Office Action) that the FH sequence is used to determine the master device identity, and "The system clock of the master device determines the phase in the hopping sequence..." Further, Lee does not describe a master identity signal that includes the master device address and CLK, as recited in claims 1 and 33.

With respect to claims 1 and 33, the combination of Lee and Zyren do not explicitly describe the limitations of a master identity signal that includes the master device address and CLK. With respect to claim 1, the combination of references does not describe the master identity signal being broadcast at the $f(kB)$ frequency. Neither does the combination of a signal strength beacon, with an avoidance beacon, suggest any modifications that the limitations of claims 1 and 33. Claim 19, dependent from claim 33 enjoys the same distinctions from the cited prior art.

Additional support for the Application's position is supplied in the affidavit of Daryl Hlasny. Mr. Hlasny is an expert in the field of Bluetooth networks. Mr. Hlasny clearly states that he, as an expert in the

field, would not be motivated to combine the Lee and Zyren references. Further, Mr. Hlasny states that the references, when combined, do not describe all the limitations of the Applicant's claims.

In Section 4 of the Office Action claims 4-6, 35, and 37-38 have been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Lee, in view of Zyren, and further in view of Haartsen (US 6,754,250). The Office Action states that Haartsen discloses a master device broadcasting its BD_addr and CLK information via a piconet beacon frequency, and that this limitation, in combination with Lee and Zyren, makes the claimed invention obvious. This rejection is traversed as follows.

Haartsen, at col. 4, ln. 55, through col. 5, ln. 3, describes the conventional operation of synchronizing a slave to a Bluetooth piconet, noting that the FH channel sequence is determined by the address of the master device. The system clock of the master determines the phase of the hopping sequence.

With respect to the first *prima facie* requirement, the combination of Haartsen with Zyren must suggest some modification to Lee that makes the claimed invention obvious. Prior art references cannot be combined for the purposes of an obviousness analysis on the basis of a retrospective-looking desire to combine different subject matters or limitations. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion of motivation in the references to do so." *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990). Here, the analysis must determine if there is any motivation, supplied by Zyren and Haartsen, to modify Lee's system in such way as to make obvious the

claimed invention's use of a master identity signal broadcast on the $f(kB)$ frequency that includes the master device's BD_addr and CLK information.

Lee describes a beacon signal whose strength (RSSI) can be measured by Bluetooth units. Neither Zyren's infrastructure warning beacon, nor Haartsen's explanation of how the master's BD_addr is used in convention Bluetooth hop synchronization, suggests that Lee's beacon be modified to supply BD_addr and CLK information at the $f(kB)$ frequency. While Lee's beacon may enable a Bluetooth unit to select the closest AP, Lee does not describe any changes the conventional acquisition procedure. Zyren and Haartsen don't even address the process of acquiring a piconet.

Neither is there a reasonable expectation of success in the combination of prior art references, which is the second *prima facie* requirement. Even if an expert were given Lee's RSSI beacon, Zyren avoidance beacon, and Haartsen's explanation of FH synchronization as a foundation, it is unlikely that this expert would derive the claimed invention master identity signal. This is because none of the references appreciate that the information needed for a slave to synchronize itself with a piconet can be supplied as at the $f(kB)$ frequency.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal that includes a master's BD_addr and CLK information. Lee and Zyren describe simple beacons, whose only attribute is signal strength. Haartsen addresses the uses of the BD_addr and CLK, but never describes the possibility of broadcasting this information as at the $f(kB)$

frequency, or broadcasting the information as a shortcut synchronization procedure. Therefore, the combination of references does not explicitly describe every limitation of claims 1 and 33. Neither are the claim limitations of claims 1 and 33 suggested by the combination of references. Claims 4-6, dependent from claim 1, and claims 35 and 37-38, dependent from claim 33, enjoy the same distinctions from the cited prior art, and the Applicant respectfully requests that the rejection be withdrawn.

In his affidavit, Mr. Hlasny states that he, as an expert in the field, would not be motivated to combine the Lee, Zyren, and Haarsten '250 references, and that the references, when combined, do not describe all the limitations of the Applicant's claims.

In Section 5 of the Office Action claims 7-8 and 39-40 are rejected under 35 U.S.C. 103(a) as unpatentable over Lee and Zyren, and further in view of Haartsen (US 6,519,460). The Office Action states that Haartsen '460 describes the limitation of a first uplink FHS packet sent from an inquiring device in response to a piconet beacon, and that the combination of references makes the claimed invention obvious. This rejection is traversed as follows.

At col. 4, ln. 35-42, Haartsen '460 describes a FH link transmitting and receiving packets. However, no mention is made in Haartsen '460 of a piconet beacon. More specifically, no mention is made of an inquiring device transmitting an FHS packet uplink in response to a master identity signal transmitting a FHS packet downlink.

With respect to the first *prima facie* requirement, neither Zyren's infrastructure warning beacon, nor Haartsen '460's explanation of FH link packet transmissions, suggests that Lee's beacon be modified to supply a beacon with a FHS downlink packet, including the BD_addr and

CLK information. With respect to the second *prima facie* requirement, Lee's RSSI beacon, Zyren avoidance beacon, and Haartsen '460's explanation of FH link packet transmissions would not provide a foundation to reasonably derive the claimed invention master identity signal with BD_addr and CLK information. As noted above, none of the references appreciates that this information can be broadcast in a predetermined frequency.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal broadcast that includes a master's BD_addr and CLK information. Lee and Zyren describe simple beacons, whose only attribute is signal strength. Haartsen '460 merely describes a conventional FH link. Therefore, the combination of references does not explicitly describe every limitation of claims 1 and 33. Neither are the claim limitations of claims 1 and 33 suggested by the combination of references. Claims 7-8, dependent from claim 1, and claims 39-40, dependent from claim 33, enjoy the same distinctions from the cited prior art, and the Applicant respectfully requests that the rejection be withdrawn.

In his affidavit, Mr. Hlasny states that as an expert, he would not be motivated to combine the Lee, Zyren, and Haarsten '460 references, and that the references, when combined, do not describe all the limitations of the Applicant's claims.

In Section 6 of the Office Action claims 20 and 51 have been rejected under 35 U.S.C. 103(a) as unpatentable over Lee and Zyren, and further in view of Haartsen (US 6,519,460). The Office Action states that Haartsen '460 describes the limitation of receiving a first uplink FHS

packet from an inquiring device in response to a piconet beacon, and that the combination of references makes the claimed invention obvious. This rejection is traversed as follows.

At col. 4, ln. 35-42, Haartsen '460 describes a FH link transmitting and receiving packets. However, no mention is made in Haartsen '460 of a piconet beacon. More specifically, no mention is made of an inquiring device transmitting an FHS packet uplink in response to a master identity signal transmitting a FHS packet downlink. At col. 5, ln. 15-20, Haartsen describes a packet format with an access code that may be derived from the identity of the master.

With respect to the first *prima facie* requirement, neither Zyren's infrastructure warning beacon, nor Haartsen '460's explanation of a FH link packet transmission or access code, suggests that Lee's beacon be modified to supply a master identity signal with a FHS downlink packet including the BD_addr and CLK information. With respect to the second *prima facie* requirement, Lee's RSSI beacon, Zyren avoidance beacon, and Haartsen '460's explanation of FH link packet transmissions and access codes would not provide a foundation to reasonably derive the claimed invention master identity signal with BD_addr and CLK information.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal, broadcast at the f(kB) frequency that includes a master's BD_addr and CLK information. Lee and Zyren describe simple beacons, whose only attribute is signal strength. Haartsen '460 merely describes a FH link and an access code, without any reference to a broadcast beacon.

Therefore, the combination of references does not explicitly describe every limitation of claims 20 and 51. Neither are the claim limitations of claims 20 and 51 suggested by the combination of references. The Applicant respectfully requests that the rejection be withdrawn.

In Section 7 of the Office Action claim 54 has been rejected under 35 U.S.C. 103(a) as unpatentable over Lee and Haartsen '460, and further in view of Haartsen '250. The Office Action states that Haartsen '460 and Haartsen '250 describe the claim limitations of a piconet beacon broadcasting a BD_addr and CLK information, and of a slave device receiving the piconet beacon, and that the combination of references makes the claimed invention obvious. This rejection is traversed as follows.

Haartsen '250, at col. 4, ln. 55, through col. 5, ln. 3, describes the conventional operation of a Bluetooth piconet, noting that the FH channel sequence is completely determined by the address of the master device. The system clock of the master determines the phase of the hopping sequence. At col. 9, ln. 50-55. Haartsen '250 describes a "park mode" where slave units monitor a beacon signal broadcast by an anchor unit. The beacon signal is a low duty cycle signal. However, no mention is made in Haartsen '250 of a master identity signal that transmits a master unit BD_addr and CLK information.

With respect to the first *prima facie* requirement, neither Haartsen '250's explanation of a park mode beacon, or the use of BD_addr to acquire the hop sequence, suggests that Lee's beacon be modified to supply a master identity signal with the BD_addr and CLK information. With respect to the second *prima facie* requirement, Lee's RSSI beacon, Haartsen's park mode beacon, and Haartsen '460's explanation of FH link

packet transmissions would not provide a foundation to reasonably derive the claimed invention master identity that supplies a master device BD_addr and CLK information.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal, broadcast at the f(kB) frequency that includes a master's BD_addr and CLK information. Lee describes a simple beacon, whose only attribute is signal strength. Haartsen '460 merely describes a conventional FH link. Haartsen '250 describes a park mode beacon. No mention is made of using this beacon to acquire a piconet. Neither is there mention made of the park mode beacon including a BD_addr and CLK information. Therefore, the combination of references does not explicitly describe every limitation of claim 51. Neither are the claim limitations of claims 51 suggested by the combination of references. Claim 54, dependent from claim 51, enjoys the same distinctions from the cited prior art, and the Applicant respectfully requests that the rejection be withdrawn.

In Section 8 of the Office Action claim 55 has been rejected under 35 U.S.C. 103(a) as unpatentable over Lee and Zyren, and further in view of Haartsen '460. The Office Action states that Haartsen '460 describes the claim limitations of a FHS packet being received from an inquiring device in response to a piconet beacon broadcasting a BD_addr and CLK information, and that the combination of references makes the claimed invention obvious. This rejection is traversed as follows.

With respect to the first *prima facie* requirement, as noted above, none of the above-mentioned references suggest that Lee's beacon be modified to supply a master identity signal with the BD_addr and CLK

information. With respect to the second *prima facie* requirement, the combination of references would not provide a foundation to reasonably derive the claimed invention master identity signal.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal, broadcast at the f(kB) frequency that includes a master's BD_addr and CLK information. Lee describes a simple beacon, whose only attribute is signal strength. Zyren describes an avoidance beacon and Haartsen '460 merely describes a conventional FH link. Therefore, the combination of references does not explicitly describe every limitation of claim 55. Neither are the claim limitations of claim 55 suggested by the combination of references, and the Applicant respectfully requests that the rejection be withdrawn.

In Section 9 of the Office Action claim 58 has been rejected under 35 U.S.C. 103(a) as unpatentable over Lee and Zyren, and further in view of Haartsen '460 and Haartsen '250. The Office Action states that Haartsen '460 describes the claim limitations of an inquiring device receiving a piconet beacon broadcast with a BD_addr and CLK information, and that the combination of references makes the claimed invention obvious. This rejection is traversed as follows.

With respect to the first *prima facie* requirement, as noted above, none of the above-mentioned references suggest that Lee's beacon be modified to supply a master identity signal with the BD_addr and CLK information. With respect to the second *prima facie* requirement, the combination of references would not provide a foundation to reasonably derive the claimed invention master identity signal.

With respect to the third *prima facie* requirement, the combination of references does not describe all the elements of the claimed invention. The claimed invention recites a master identity signal that includes a master's BD_addr and CLK information. Lee describes a simple beacon, whose only attribute is signal strength. Zyren describes an avoidance beacon and Haartsen '460 merely describes a conventional FH link. Haartsen '250 describes a park mode beacon. No mention is made of using this beacon to acquire a piconet. Neither is there mention made of the park mode beacon including a BD_addr and CLK information. Therefore, the combination of references does not explicitly describe every limitation of claim 55. Neither are the claim limitations of claim 55 suggested by the combination of references. Claim 58, dependent from claim 55, enjoys the same distinctions from the cited prior art, and the Applicant respectfully requests that the rejection be withdrawn.

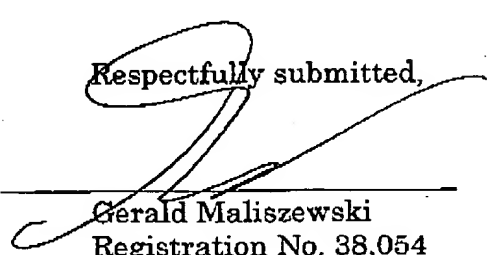
Section 10 of the Office Action states that claims 27 and 32 are allowed. The Applicant neither explicitly agrees nor disagrees with the stated reasons for allowance.

Section 11 of the Office Action states that claims 9-18, 24-26, 41-50, and 592 would be found allowable if rewritten in independent form, including the subject matter of the base and intervening claims.

It is believed that the application is in condition for allowance and reconsideration is earnestly solicited.

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Respectfully submitted,


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